

**Claims**

5 1. A process for preparing polyether alcohols by reacting saturated alkylene oxides with at least one saturated OH compound, or an alkylene oxide which has previously been oligomerized or polymerized with the saturated OH compound, in the presence of a double metal cyanide (DMC) catalyst, wherein an antioxidant is added before or during the reaction, using more 10 antioxidant than DMC catalyst (based on the mass of DMC catalyst used).

2. The process according to claim 1, wherein the antioxidant is used in a total amount which is at least 1.5 times the mass of DMC catalyst used.

15 3. The process according to claim 1 or 2, wherein the antioxidant is selected from the group consisting of sterically hindered phenols, N,N-disubstituted hydroxylamines, sterically hindered secondary cyclic amines, diarylamines, organic phosphonic acid derivatives, N,N-substituted hydrazine compounds, oxamide compounds, benzofurans and lactones.

20 4. The process according to any of claims 1 to 3, wherein the antioxidant is used in a concentration of from 7 to 4000 ppm, based on the mass of polyether alcohol to be prepared.

25 5. The process according to any of claims 1 to 4, wherein the antioxidant is added immediately before one of the following process steps (a) to (g): (a) addition of the OH compound, (b) addition of the DMC catalyst, (c) milling of the DMC catalyst, (d) removal of suspension media, (e) removal of water, (f) addition of alkylene oxide, (g) reaction of alkylene 30 oxide with OH compound.

6. The process according to any of claims 1 to 5, wherein the amount of double metal cyanide catalyst is from 5 to 1000 ppm, based on the mass of the polyether alcohol to be prepared.

35 7. The process according to any of claims 1 to 6, wherein polyether alcohols having a hydroxyl number of from 10 to 350 mg KOH/g are obtained.

8. The process according to any of claims 1 to 7, wherein polyether alcohols having an OH functionality of from 1 to 8 are obtained.
- 5 9. A polyether alcohol which can be prepared by a process according to any of claims 1 to 8 and has an OH functionality of from 1 to 8, a hydroxyl number of preferably from 30 to 300 mg KOH/g, a DMC catalyst concentration of preferably from 10 to 1000 ppm and further comprises an antioxidant in an amount which is at least 1.5 times the mass of the DMC catalyst.
- 10 10. A process for producing polyurethanes, which comprises the following steps:
  - A) preparation of polyether alcohols by a process according to any of claims 1 to 9,
  - 15 B) reaction of the polyether alcohols from step A) with isocyanates and/or polyisocyanates to form polyurethanes.